

# Environmental Assessment

## *Authorization of Livestock Grazing: Sage Chicken Flat Allotment #01436*



July 2014



High Desert District - Kemmerer Field Office

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

**BLM/WY/PL-14/028+1020**

**DOI-BLM-WY-D090-2011-0065-EA**

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# 1.0 Introduction

Environmental Assessment	DOI-BLM-WY-D090-2011-0065-EA
<b>Title:</b> Authorization of Livestock Grazing: Sage Chicken Flat Allotment (#01436)	
<b>Allotment Category:</b> Sage Chicken Flat Allotment: M – Maintain – The objective is to maintain resource conditions on the allotment.	
<b>Location:</b> Lincoln County, Wyoming Sage Chicken Flat Allotment (#01436) T. 13 N. R116 W. Sections: 3,4,9 and 10 *(see maps in Appendix B for details)	<b>Environmental Assessment Prepared by:</b> Bureau of Land Management High Desert District Kemmerer Field Office 312 Highway 189 North Kemmerer, WY 83101 (307) 828-4518

## 1.1 Background

The Sage Chicken Flat Allotment is located in Uinta County, approximately 10 miles southwest of Robertson, Wyoming (see Appendix B, Maps 1-4). Land ownership within the allotment is described in Table 1-1. Bureau of Land Management (BLM) records show that livestock grazing has been occurring on the allotment since the 1950's. However, it is likely that livestock grazing occurred in this area prior to the 1950's.

Annual precipitation for the area ranges between 8 and 12". Elevation for the allotment ranges between ~8400 feet and ~8600 feet with a slope distribution between 0 and 40 percent. The allotment is fairly equal in acres for public lands vs. private acres. The BLM manages livestock grazing on public land by issuing grazing permits with specified terms and conditions. These permits are issued to qualified applicants and contain stipulations that promote the principles of multiple use and sustained yield.

This environmental assessment has been prepared to analyze potential impacts of permit renewal and potential prospective management actions on the Sage Chicken Flat Allotment. Most of the permits have been extended under public law or have a short term basis property lease. The permits have been renewed on a temporary basis until the BLM completes the environmental analysis for renewal or lease of these permits, in accordance with applicable laws and regulations.

**Table 1-1. Ownership Information for Sage Chicken Flat Allotment**

Allotment Name	Allotment Number	Public Acres	Private Acres	State Acres	Total Acres
Sage Chicken Flat	01436	796	672	0	1468
	<i>Percent:</i>	54%	46%	0%	100%

## 1.2 Purpose and Need for the Proposed Action

The purpose of the federal action is to respond to a request for a ten-year grazing permit renewal and apply appropriate terms and conditions to grazing permits for the Sage Chicken Flat Allotment (#01436).

The need for the federal action is established by the BLM responsibility under the Taylor Grazing Act (TGA) of 1934 and the Federal Land Policy and Management Act (FLPMA) of 1976 to ensure progress towards meeting the Standards for Rangeland Health and to establish allotment specific objectives.

## 1.3 Decision to Be Made

The BLM will determine what (if any) changes need to be made to grazing management on the Sage Chicken Flat Allotment. These changes will be reflected on any grazing permits authorizing grazing on this allotment.

## 1.4 Scoping, Public Involvement and Issues

### 1.4.1 Internal Scoping

The following issues were identified during internal scoping:

- Will cultural resources be impacted with continued grazing.
- Will non-native or invasive plant species introduction and presence increase as a result of continued grazing.
- Will there be any new impacts to mountain plover or sage-grouse as a result of continued grazing?
- How will competition for forage and crucial deer winter range habitat (Wyoming Range Herd, Unit 131) and crucial elk winter range habitat (West Green River Herd, Unit 428) be affected by the proposed action and alternative's.
- Will continued grazing increase impacts to wetlands, riparian areas and water quality without revising the terms and conditions of the permit.
- Will consideration of no grazing have an impact on socio-economics (sale and

subdivision) of the area.

- How will continued grazing impact soils and vegetation.

### 1.4.2 External Scoping

On November 29, 2010 a scoping letter was sent to livestock operators and appropriate state organizations, and all other interested parties concerning the grazing permit renewals for the Sage Chicken Flat Allotment. One comment was received from the Wyoming Game and Fish Department on December 28, 2010 stating they have no terrestrial wildlife or aquatic concerns pertaining to the permit/lease renewal.

## 2.0 Proposed Action and Alternatives

This environmental assessment (EA) will focus on the Proposed and No Grazing alternatives for grazing permit renewals on the Sage Chicken Flat Allotment (01436). Since no potential impacts have been identified, there are no issues to resolve through additional mitigation or other action alternatives. The No Grazing alternative is considered and analyzed to provide baseline for comparison of the impacts of the proposed action.

### 2.1 Alternative 1- No Action

The no action is to renew one existing grazing permit on the Sage Chicken Flat allotment for Donald L. Black (see Table 2-1). The allotment is currently leased from Wesley Whittaker to Black. The grazing permit would be issued for a term of ten years with current terms and conditions which are currently allowing the rangeland to meet plant health and vigor.

Livestock grazing will continue as it has in the past. The allotment is open to grazing and currently no pasture fences exist. The limiting factor for livestock grazing is water. Once the reservoirs dry up, and the intermittent flow of water in Yellow Hollow creek stops, livestock are moved off the allotment even if the grazing use period had not ended for the year.

Grazing use within the allotment will meet the goal and objectives outlined in the Kemmerer RMP (BLM 2010). The goals and objectives outlined in the Kemmerer RMP (BLM 2010) for riparian /wetland stubble heights is four to six inches and fifty percent utilization levels for upland vegetation species. Five inch stubble height acts as being a trigger point to start preparing to move livestock off the allotment.

The following mandatory terms and conditions will be included in any grazing permit issued for this allotment:

- **Allotment:** Name and number of the allotment where livestock grazing is being authorized.
- **Season of Use:** The time of year during which livestock will be authorized to graze on the allotment. This must be within the time frame specified in Table 2-1 (Season of Use). Livestock will not be authorized to graze for any period of time outside the season



of use. The terms will not exceed ten years.

- **Maximum # of Livestock:** The number of livestock authorized to graze on the allotment at one time. For a given permit, this number may vary depending on the season of use, so long as the number of AUMs allocated to the permit is not exceeded. The maximum number of livestock on the allotment at one time shall not exceed the number given in Table 2-1 (Maximum # of Livestock).
- **Kind of Livestock:** The kind of livestock authorized to graze on the allotment.
- **Active AUMs:** The total number of Animal Unit Months available for livestock use on public land within the allotment. Total AUMs for the allotment shall not exceed the number given in Table 2-1 (Active AUMs).

**Table 2-1. Summary of Total Available Grazing Use by Allotment**

Allotment	Allotment #	Permit #	Season of Use	Maximum # of Livestock	Livestock Kind	Active AUMs
Sage Chicken Flat Donald L. Black	01436	4904176	05/25 to 07/31	25	Cattle	56

## 2.2 Alternative 2 – Proposed Action

The proposed action is to renew one existing grazing permit on the Sage Chicken Flat Allotment as described in section 2.1, but with additional terms and conditions as outlined in sections 4.2 and 4.4. New terms and conditions will include the location of livestock salt or mineral supplements a minimum of ¼ mile away from water sources, riparian areas, and aspen stands, as outlined in the Kemmerer RMP, decision #4024 (BLM 2010).

## 2.3 Alternative 3 – No Grazing

Under the No Grazing Alternative, livestock grazing would not be authorized on the Sage Chicken Flat Allotment (#01436). The Kemmerer RMP (BLM 2010) would be amended to exclude livestock grazing on this allotment. No grazing permits would be issued, and existing grazing permits would be cancelled.

All AUMs associated within this allotment would be permanently retired. Livestock grazing would be excluded in order to enhance the other land uses in BLM's multiple use mandate (see Federal Land Policy and Management Act of 1976).

## 2.4 Alternatives Considered but not Analyzed in Detail

None of the issues raised required an additional alternative to avoid potentially significant effects or to meet Standards for Rangeland Health.

## 2.5 Conformance with LUP, Relationship to Statutes, Regulations, Plans or Other Environmental Analyses

The Proposed Action is in conformance with the 2010 BLM Kemmerer Resource Management Plan (RMP) and Record of Decision (ROD). The Proposed Action allows livestock grazing within the Sage Chicken Flat Allotment and meets the following RMP goals and decisions:

- Management Goal Common to All Resources: Manage vegetation, soil, landform, water quality, and air quality to maintain, meet, or make substantial progress towards meeting the Standards for Healthy Rangelands and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the State of Wyoming (Standards and Guidelines).
- Goal LR: 4 - Maintain and (or) enhance livestock grazing opportunities and rangeland health.
- Decision 4001: Manage vegetative communities in accordance with Wyoming Standards for Healthy Rangelands.
- Decision 6014 - Develop and implement appropriate livestock grazing management actions to address rangeland health standards, improve forage for livestock and enhance rangeland health.
- Decision 6015 - Authorize current amounts, kinds and seasons of livestock grazing uses until rangeland health standards assessment results and (or) monitoring indicated a grazing use adjustment is necessary, or that a kind and (or) class of livestock or season of use modification can be accommodated.
- Decision 6016 - Maintain current allotment categories.
- Decision 6025 - Improve range conditions on I allotments and maintain M and C allotments. Design grazing systems and range improvements to achieve management objectives.
- Decision 7014: No salt licks or mineral supplements allowed within ¼ mile of live water, sensitive wildlife areas (e.g., greater sage-grouse leks), special status plant locations, NHTs, and significant cultural sites.

The Proposed Action conforms to the Standards and Guidelines for Rangeland Health (43CFR§4180) and Wyoming's Standards and Guidelines for Rangeland Health. In addition, the Proposed Action would comply with the following laws and/or regulations, other plans, and are consistent with Federal, State, and local laws, regulations:

- Taylor Grazing Act of June 30, 1934, as amended
- Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.)
- Public Rangelands Improvement Act of 1978
- Endangered Species Act of 1973 as amended
- 43 CFR § 4100 Grazing Administration-Exclusive of Alaska
- Clean Water Act Section 303d
- Section 106 of the National Historic Preservation Act of 1966 as amended
- National Environmental Policy Act of 1969
- Sikes Act of 1969, as amended (Habitat Improvement on Public Land)
- Fish and Wildlife Improvement Act of 1978
- Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds
- Record of Decision and Approved Kemmerer Resource Management Plan approved on May 24, 2010
- Grazing Regulations as codified in 43 CFR § 4100 as amended in 2005
- State of Wyoming Executive Order 2011-5 (replaces 2010-4 and 2008-2), Greater Sage Grouse Core Area Protection

### 3.0 Affected Environment

The affected environment was considered and analyzed by an interdisciplinary team as documented in the Interdisciplinary Team Checklist (Appendix A). The following checklist indicates which resources of concern are either not present in the project area or would not be impacted to a degree that requires detailed analysis:

Air Quality

Areas of Critical Environmental Concern (ACEC)

Environmental Justice

Prime or Unique Farmlands

Flood Plains

Hazardous or Solid Wastes

Native American Religious Concerns

Oil and Gas

Paleontology

Public Health and Safety

Recreation

Traditional Cultural Properties

Visual Resource Management

Wild and Scenic Rivers

Wilderness Values

Resources that could be potentially impacted to a level requiring further analysis are described below.

## 3.1 Cultural Resources

A cultural resources data review (file search) of the Sage Chicken Flat Allotment was completed on March 5, 2014 by Doug Tingwall, BLM archaeologist using data available in the BLM KFO cultural resources files and the State Historic Preservation Office (SHPO) Wyoming Cultural Records Office (WYCRO) on-line database.

Three previous cultural resource inventories and related projects have been conducted within the sections analyzed for the file search between 1980 and 2001. Previous Class III cultural inventories were completed for: one well pad development; one seismic line; and one reservoir.

As a result of these inventories, only one resource, a prehistoric landscape, has been identified within the data review area and Area of Potential Effects (APE). The Black's Fork Lithic Landscape (48UT1582) is not eligible for the National Register of Historic Places.

The data review yielded no evidence of known, tribally-sensitive sites that would trigger Native American consultation under the provisions of Section 106 of the National Historic Preservation Act. In addition, no consultation was initiated with individuals, organizations, and agencies regarding the presence of significant sites because the proposed action has no potential to affect historic properties.

## 3.2 Non-native or Invasive Plant Species

Weeds known to grow on the allotment are black henbane (*Hyoscyamus niger*), cheat grass (*Bromus tectorum*), Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans* L.) and houndstongue (*Cynoglossum officinale* L.). Weeds are primarily absent in the uplands or are limited to roadways and other disturbed area within the allotment. Weed species, if not controlled, have been known to take over major portions of rangelands. This makes the area less desirable or unusable by livestock and wildlife species. It also makes the area less desirable for recreationists and hunters who like to experience the outdoors.

## 3.3 Biological Resources

### 3.3.1 Wildlife

The environmental impact statement (EIS) for the Kemmerer Resource Management Plan (RMP) describes in detail the habitats and life cycle requirements for wildlife species in the Kemmerer planning area (BLM 2008, pp. 3-59 to 3-89). The BLM has conducted a field investigation of the project area to determine the potential impacts on identified wildlife species.

## **General Wildlife and Fish**

Mammals potentially occurring in the project area include: badgers, red fox (*Vulpes vulpes*), coyote (*Canis latrans*), desert cottontail (*Sylvilagus audubonii*), white-tailed jackrabbit (*Lepus townsendii*), ground squirrels, chipmunks, mice, voles, shrews, northern pocket gopher (*Thomomys talpoides*) and big game species. Additional information is provided below on big game species managed by the Wyoming Game and Fish Department (WGFD) and migratory birds that may be present in the study area for brief periods.

### ***Big Game***

#### Moose

Moose (*Alces alces*), largest members of the deer family, are primarily browsers and depend on a diet of shrubs and young deciduous trees for much of the year, but they are often associated with river bottoms, ponds, and lakes with an abundance of shrubby and aquatic vegetation. Herd unit 415 encompasses the entire Wyoming portion of the project area.

Herd unit 415 begins where Interstate Highway 80 crosses the Wyoming-Utah state line; easterly along said highway to Wyoming Highway 410; southerly along said highway to the Stateline Dam Road (USFS Road 072); southerly along said road to the Wyoming-Utah state line; west then north along said line to Interstate Highway 80. Where Interstate Highway 80 crosses the Green River; southerly along the east bank of said river to Flaming Gorge Reservoir; southerly along the east shore of said reservoir to the Wyoming-Utah state line; westerly along said line to the Stateline Dam Road (USFS Road 072); northerly along said road to Wyoming Highway 410; northerly along said highway to Interstate Highway 80; easterly along said highway to the Green River. Where Interstate Highway 80 crosses the Green River; easterly along said highway to the Bitter Creek Road (Sweetwater County Road 19); southerly along said road to Carson Springs Junction and the Cow Creek-Powder Wash Road; southerly along said road to the Wyoming-Colorado state line; westerly along said line to the Wyoming-Utah state line; westerly along said line to Flaming Gorge Reservoir; northerly along the east shore of said reservoir to the Green River; northerly up the east bank of said river to Interstate Highway 80 (WGFD 2011). There are no current population estimates for this population but the population objective is 900.

#### Mule Deer

Mule Deer (*Odocoileus hemionus*) occur throughout western North America in a wide variety of habitats from deserts, riparian areas, sage-brush grasslands, shrublands, foothills, forests to tundra (Clark and Stromberg 1987). In Wyoming, mule deer provide recreational, aesthetic, and economic values to hunters, wildlife enthusiasts, and local business throughout the state (Olson 1992). More than 100,000 hunters annually pursue this species in Wyoming, spending an average of more than 336,000 days in the field to harvest more than 60,000 animals (Olson 1992). Based on hunter harvest reports, mule deer are the most frequently taken big game animal in Wyoming (Clark and Stromberg 1987). Herd unit 423 encompasses the entire Wyoming portion of the project area.

The project area is located within mule deer herd unit 423. Mule deer herd unit 423 (Uinta deer herd) begins at the junction of Interstate 80 and Wyoming Highway 412; easterly along I-80 to the Green River; southerly down the east bank of the Green River to Flaming Gorge Reservoir; southerly along the east shore of the reservoir to the Wyoming-Utah state line; westerly then northerly along the state line to the junction of Wyoming Highway 89 and the Wyoming-Utah state line; southeasterly to the junction with Uinta County Road 103; northerly to the Whitney Canyon Road; easterly to the Amoco Sulfur Haul Road; easterly then northerly to Muddy Creek; easterly to US Highway 189; northerly to Wyoming Highway 412 southeasterly back to I-80 (WGFD 2012). Herd unit 423 does not have a population estimate, but the population objective is 20,000 (WGFD 2011). The WGFD (2011) states that, “there is no working population model for the Uinta deer herd. This is an interstate population with extensive interchange across the state boundary with Utah.”

#### Pronghorn Antelope

The pronghorn antelope (*Antilocapra americana*) is the predominant ungulate of the high sagebrush-steppe ecosystems in western North America (Reeve 1984). Pronghorn populations were estimated at 45 million prior to European settlement (Clark and Stromberg 1987). By 1924, the population was approximately 14,000 (Clark and Stromberg 1987). Since then their numbers have increased (Clark and Stromberg 1987), and today there are approximately 500,000 within Wyoming alone (WGFD 2009). Herd unit 411 encompasses the entire Wyoming portion of the project area.

The project area is located within antelope herd unit 411. Antelope herd unit 411 is a large area beginning where the Flaming Gorge Reservoir crosses the Wyoming-Utah state line; west along said line to the Hoop Lake-Hole-in-the-Rock Road (Uinta County Road 295); northerly along said road to Wyoming Highway 414 at the town of Lone Tree; northerly along said highway to Interstate Highway 80; easterly along said highway to the Green River; southerly down said river to Flaming Gorge Reservoir; southerly along the east shore of Flaming Gorge Reservoir to the Wyoming-Utah state line. Where Interstate Highway 80 crosses the Wyoming-Utah state line; easterly along said highway to Wyoming Highway 414; southerly along said highway through the town of Lone Tree to the Hoop Lake-Hole-in-the-Rock Road (Uinta County Road 295); southerly along said road to the Wyoming-Utah state line; westerly then northerly along said line to Interstate Highway 80 (WGFD 2011).

#### Elk

Elk (*Cervus canadensis*) once ranged from northern Canada southward along the California coastline, and throughout much of the United States (Clark and Stromberg 1987). Today, the range has been reduced, however, due to reintroduction efforts; the elk is being restored in many parts of the historical range. In Wyoming, they occur from deserts to timbered areas, and occupy habitats dominated by shrubs and grasses to high mountain meadows of grasses and forbs (Clark and Stromberg 1987). Herd unit 423 encompasses the entire Wyoming portion of the project.

The project area lies within elk herd unit 423. Elk herd unit 423 begins where Interstate Highway 80 crosses the Wyoming-Utah state line; easterly along said highway to Wyoming Highway 414; southerly along said highway to Wyoming Highway 410 at the town of Mountain View; southerly along said highway to the Stateline Dam Road (USFS Road 072, Uinta County Road 283); southerly along said road to the Wyoming-Utah state line; west then north along said line to Interstate Highway 80. Where the Flaming Gorge Reservoir crosses the Wyoming-Utah state line; west along said line to the Stateline Dam Road (USFS Road 072, Uinta County Road 283); northerly along said road to Wyoming Highway 410; northerly along said highway to Interstate Highway 80; easterly along said highway to the Green River; southerly down said river to Flaming Gorge Reservoir; southerly along the east shore of said reservoir to the Wyoming-Utah state line (WGFD 2011). Herd unit 423 does not have an estimated population size but has a population objective of 600.

### ***Migratory Birds***

The Migratory Bird Treaty Act (MBTA) of 1918, as amended, was implemented for the protection of migratory birds. Unless permitted by regulations, the MBTA makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including feathers or other body parts, nests, eggs, or migratory bird products. In addition, Executive Order 13186 sets forth the responsibilities of federal agencies to implement the provisions of the MBTA by integrating bird conservation principles and practices into agency activities and by ensuring that federal actions evaluate the effects of actions and agency plans on migratory birds. Wyoming BLM non-sensitive migratory birds that could nest in the project area include: vesper sparrow, horned lark, black-billed magpie, common raven and various raptor species.

### **Special Status Species**

Special Status Species (SSS) include those species federally listed under the Endangered Species Act (ESA) by the US Fish and Wildlife Service (USFWS) and those listed as the Wyoming BLM Sensitive Species (WBSS) designated by the BLM Wyoming State Director.

In accordance with Section 7 of the ESA, as amended, the lead agency in coordination with USFWS must ensure that any federal action to be authorized, funded, or implemented would not adversely affect a federally listed species, or its designated critical habitat. Within the KFO boundaries, the USFWS requires seven threatened or endangered animal species and two plant species to be analyzed for all proposed actions (USFWS 2010). Of those nine species, none were present within the project boundary; therefore, these species will not be discussed further within this EA.

Special Status Species Management Policy 6840 requires the BLM not only to manage species listed under the ESA, but to also manage WBSS to prevent the need for future listing under the ESA. A total of forty-two (42) WBSS animals potentially occur within the KFO, six (6) are either known to occur or the habitat is present for the species to potentially occur within the action area. The other thirty-seven (37) species will not be discussed further within this EA.



**Table 3-1. Special Status Species Potentially Within the Project Area**

Species	Scientific name	Status	Habitat	Habitat Type
Idaho pocket gopher	<i>Thomomys idahoensis</i>	SSS <sup>2</sup>	potential habitat present	shallow stony soils
sage sparrow	<i>Amphispiza belli</i>	SSS <sup>2</sup>	habitat present	basin-prairie shrub and mountain-foothill shrub
Greater sage-grouse	<i>Centrocercus urophasianus</i>	SSS <sup>2</sup> ; Candidate <sup>3</sup>	habitat present	basin-prairie shrub and mountain-foothill shrub
loggerhead shrike	<i>Lanius ludovicianus</i>	SSS <sup>2</sup>	habitat present	basin-prairie shrub and mountain-foothill shrub
sage thrasher	<i>Oreoscoptes montanus</i>	SSS <sup>2</sup>	habitat present	basin-prairie shrub and mountain-foothill shrub
Brewer's sparrow	<i>Spizella breweri</i>	SSS <sup>2</sup>	habitat present	basin-prairie shrub
<sup>1</sup> USFWS ESA-listed species				
<sup>2</sup> Wyoming BLM Special Status Species				
<sup>3</sup> Proposed for listing as threatened under the ESA				

***Greater Sage-grouse***

Greater sage-grouse (*Centrocercus urophasianus*) were originally proposed for protection under the endangered species list on July 2, 2002. Most recently, after several 90-day findings, the USFWS issued a proposed rule of, “Warranted, but precluded by higher priority listing actions” (USFWS 2010b). Due to this rule, the sage-grouse is not listed at this time; however, precautions should be taken to avoid listing. Several factors could move the species higher on the ranking list and closer to listing.

Currently, Greater sage-grouse distribution and sagebrush habitat encompasses parts of 11 states in the western United States and two Canadian provinces, occupying approximately 56% of their historical range (Schroeder et al. 2004). Sage-grouse distribution is strongly associated with distribution of sagebrush (*Artemisia* spp.), and in particular, big sagebrush (*A. tridentata*) (Schroeder et al. 2004). Sage-grouse show high fidelity to an area. During the breeding season (March–May), male sage-grouse gather together to perform courtship displays at known locations called “leks.” Leks are generally areas of little or no vegetation or cushion plant communities. Leks can be formed opportunistically or near nesting habitat (USDI 2010c). Females have been documented to travel more than 12.5 miles to their nesting site after mating (Connelly et al.



2000), however, studies conducted in Wyoming indicate that 45% of sage-grouse hens nest within 1.86 miles of the lek while 64% nest within 3.11 miles (Holloran and Anderson 2005). Sage-grouse nesting habitat is generally described as sagebrush that has a canopy cover between 15 and 30%, and heights between 11 and 32 inches (USDI 2004c). During the first two-three weeks, hens rear their broods in what is considered early brood-rearing habitat (within 1.2 miles of the nest in Wyoming, on average) (Cagney et al. 2010). Typically, this area has sufficient cover and is adjacent to foraging areas containing forbs and insects.

There is currently one known active Greater sage-grouse lek within the project boundary. The Cap White 2 lek has been active since 2005 with numbers as high as 35 males counted during mating season. This entire project area is also part of the Uinta sage-grouse core area.

### ***Sage obligate songbirds***

Sage thrasher (*Oreoscoptes montanus*), Brewer's sparrow (*Spizella breweri*), sage sparrow (*Amphispiza belli*), and loggerhead shrike (*Lanius ludovicianus*) are considered sage-obligate species, meaning they require sagebrush ecosystems for reproduction and survival. Loggerhead shrikes are shrub-nesting sagebrush obligates meaning they require sagebrush for successful reproduction but not necessarily for food or other resources. Slight variation in habitat preference exists among these species. Even with slight variability, all of these species inhabit prairie and foothill shrublands where sagebrush is present, often using tall shrubs with low grass cover and clumped sagebrush in a patchy landscape. This type of habitat occurs throughout the action area.

### ***Idaho pocket gopher***

There are several species of pocket gophers in Wyoming and the surrounding states. All look very similar, making it difficult to distinguish specimens to species. Reliable identification has to involve chromosomal analysis (i.e. karyotyping to count chromosome number), with supporting information from geographic location, pelage characters, and overall morphology (Beauvais and Dark-Smiley 2005). Idaho pocket gophers (*Thomomys idahoensis*) are very small, with yellowish to dark brown fur; they lack ear patches and contrasting cheeks, and dorsal regions are uniform in color (Clark and Stromberg 1987). *T. idahoensis*, along with other members of the pocket gopher family are highly adapted to fossorial (underground) living (Beauvais and Dark-Smiley 2005, Griscom et al. 2010).

*T. idahoensis* occurs from southwestern Montana, through eastern Idaho to southwestern Wyoming. Little is known about its habitat but its distribution suggests a preference for mountain foothill shrubland and a higher tolerance for rocky soils (Griscom et al. 2010). In Wyoming, the species occupies shallow, stony soils and has been documented in open sagebrush, grassland plains, and subalpine mountain meadow habitats in Wyoming (Beauvais and Dark-Smiley 2005). The Biotics Database maintained by the Wyoming Natural Diversity Database (WYNDD) contains only 33 known occurrences of *T. idahoensis* in Wyoming, all falling within the sagebrush foothills zone of the Wyoming Range, Uinta, and Wind River Mountains

(Beauvais and Dark-Smiley 2005, Griscom et al. 2010). Very little is currently known about its biology and ecology (Griscom et al. 2010), but the species is assumed to be rare and has a limited distribution (Beauvais and Dark-Smiley 2005). Even though Idaho pocket gophers have not been observed, current habitat projections indicate that the species has the potential to occur throughout the project area.

### **3.3.2 Water Quality**

There is one creek and two reservoirs used as water sources on the Sage Chicken Flat Allotment: Yellow Hollow Creek, of which portions of the creek are on public land. None of these water sources are listed on the Wyoming Department of Environmental Quality's 303(d) list. This list describes water sources that do not currently meet state water quality standards. Yellow Hollow Creek has intermittent water flow and depend on the snowpack the area receives each year.

### **3.3.3 Wetlands/Riparian Zones**

Approximately 1/4 mile of the Yellow Hollow Creek runs through the southeast portion of the Sage Chicken Flat Allotment and is rated as being in Proper Functioning Condition (PFC). The system is intermittent and does not flow the entire year on the surface. This system has a different potential than a perennial system with sustained year-round surface flow, as portions of the creek go dry during the hot summer months.

### **3.3.4 Soils**

The soils on the Sage Chicken Flat Allotment are loamy skeletal, mixed Agric Cryoboroll. This soil type is found at elevations from 7,500-8,200 feet, with a depth of 60 plus inches. These soils are within the 10 to 14 inch precipitation zone and runoff is slow; erosion from water is slow and slight for wind. The soils are protected by having adequate rock, litter, or biological soil crust cover to prevent soil loss due to wind and water erosion. Soils appear stable, provide for water infiltration, and are protected from erosion during runoff events. There are no current signs of compaction or erosion problems.

When the Standards for Healthy Rangelands assessment was conducted for the Sage Chicken Flat Allotment in August of 2012, it was determined that there was adequate vegetation present to protect and stabilize soils (BLM 2009). There were no signs of excessive erosion on the allotment.

The majority of the Sage Chicken Flat Allotment shows a diverse composition and age class structure of plant communities which allows for soil stability and minimal runoff. The primary upland vegetation within this allotment is Wyoming big sagebrush (*Artemisia tridentata*) and major grass species include thickspike wheatgrass (*Elymus lanceolatus*), Sandberg bluegrass (*Poa secunda*) and Idaho fescue (*Festuca idahoensis*) with a few small stands of trembling aspen

(*Populus tremuloides*) and scattered mountain shrub communities consisting of bitterbrush (*Purshia tridentata*), common snowberry (*Lonicera involucrata*) and serviceberry (*Amelanchier alnifolia*).

The vegetative community is quite vigorous and adequate for protecting smaller particle soils from erosion. In addition to the protective cover provided by vegetation, the soil surface in this area contains quite a bit of surface cobble, which provides further protection and stability for the soils on the allotment. Some minor erosion is present but minimal, and is limited to those areas where vehicle and equipment use is concentrated.

Presence and abundance of biological soil crusts on the Sage Chicken Flat Allotment is unknown as no data has been collected for biological soil crusts on the allotment. However, while biological soil crusts play a crucial role in stabilizing soils and facilitating nutrient cycling in lower elevation desert environments (such as the Mojave Desert or the Great Basin), they are less abundant and less crucial in higher elevation ecosystems (such as the High Desert, where the Sage Chicken Flat Allotment resides). In these higher elevation environments, vegetation is more abundant and provides the same ecosystem benefits that biological soil crusts provide in lower elevation environments.

### 3.3.5 Vegetation

Sagebrush/grass is the major vegetative type of vegetation on the allotment with densities ranging from 25% in the north and northwest to 40% in the southwest. The allotment has a few aspen (*Populus tremuloides*) patches on the west portions of the allotment

The non-timbered areas have plants appropriate to the sites. Most of the areas have a mix of sagebrush and mountain shrub community types. Mountain big sagebrush (*Artemisia tridentata*) is the primary vegetation on the allotment along with Wyoming big sagebrush (*Artemisia tridentata* ssp *Wyomingensis*). Upland habitats support a wide diversity of plant species. Non-timbered areas consist mostly of a mix of sagebrush and mountain shrub community types. Key grass species consists of Idaho fescue (*Festuca idahoensis*), Letterman needlegrass (*Stipa lettermanni*) and Indian ricegrass (*Achnatherum hymenoides*).

Most key riparian species in the allotment are Nebraska sedge (*Carex nebraskensis*), beaked sedge (*Carex utriculata*) and tufted hairgrass (*Deschampsia caespitosa*).

## 3.4 Social and Economic Resources

Livestock grazing is a substantial element of the agricultural industry in Wyoming (Moline *et al.* 1991) and agriculture plays an important role in Wyoming's economy for several reasons:

- Agricultural expenditures tend to be consistent, even during periods of general economic instability.

- Many of the resources required for production in the agricultural industry are provided by the local resource pool.
- Most agricultural operations in the state are locally owned and operated, thereby providing more money and jobs within the state.

Uinta County, Wyoming contains 535 active farms and ranches that span 342,630 acres (USDA 2009a). These ranching operations sustain 35,803 cattle and 43,256 sheep (USDA 2009a) currently valued at ~\$94,050,008 based on values of \$1,020 per head of cattle and \$133 per head of sheep (USDA 2008). In 2007 these farms and ranches spent \$30,065,000 on production costs, with the average operation spending \$56,197 (USDA 2009a). As stated above, many of the resources required for production can be provided by the local resource pool (Moline *et al.* 1991), therefore it is likely that much of the capital spent on production costs went to local communities.

Many of these ranching operations utilize federal land in and around Uinta County as part of their annual operation. Current grazing fees on public land are \$1.35 per AUM, compared to \$5.13/AUM on Wyoming State Land, and ~\$15.70/AUM on private, non-irrigated grazing land (USDA 2009b). Grazing fees on the Sage Chicken Flat Allotment currently generates ~\$75.60 annually. Money generated from public land grazing fees on the allotment is distributed as follows:

- 50% - Range Improvement Fund. This money is used to implement range improvements (i.e. water developments, fence construction, spring developments, etc.) in the area where the grazing fees were generated.
- 12.5% - State of Wyoming
- 37.5% - U.S. Treasury

## **4.0 Environmental Effects**

### **4.1 Alternative 1 – No Action**

Effects to this alternative are similar to those described in the proposed action alternative.

### **4.2 Alternative 2 – Proposed Action**

#### **4.2.1 Cultural Resources**

In accordance with Section 106 of the National Historic Preservation Act, the BLM must consider impacts to historic properties [sites that are eligible for or listed on the National Register of Historic Places (NRHP)] that may occur within an undertaking's APE.

The Programmatic Agreement Among the Bureau of Land Management, Advisory Council on

Historic Preservation, and the National Conference of State Historic Preservation Officers Regarding the Manner in which BLM will Meet its Responsibilities Under The National Preservation Act: State Protocol, (State Protocol), was ratified in 2006 as a supplement to the National Programmatic Agreement. The State Protocol establishes alternative agency procedures for how the BLM will meet its responsibilities under Sections 106, 110 (f) and 111 (a) of the National Historic Preservation Act (NHPA) as a substitute for following the 36CFR800 regulations. This allows the BLM to operate more effectively in a manner that works best for the State of Wyoming.

State Protocol Section IV.A.1, Appendix B.2 and B.27 expresses agreement among the partners that the following actions related to dispersed grazing are exempt from case-by-case review:

- Appendix B.2: Issuing leases, easements, rights-of-way, and permits that do not authorize or promote surface disturbance.
- Appendix B.27: Renewal of grazing leases/permits where type of animals and seasons of use do not change.

By precedent, “surface disturbance” has been understood to refer specifically to substantial modification or actual intrusion into the soil created by mechanized equipment or vehicles; this definition does not refer to any activity that occurs solely on top of the ground surface.

Because of these exemptions in the State Protocol, dispersed grazing activities have been determined to have no potential to adversely affect historic properties for the purposes of complying with Section 106 of the NHPA.

The BLM does recognize that, under the terms of the National Environmental Policy Act (NEPA), cultural resources found on the surface have the potential to be impacted by livestock grazing. The effects of livestock grazing/trampling on cultural resources generally consist of artifact breakage or abrasion, horizontal displacement, and vertical migration (Osborn and Hartley, no date; Osborn et al. 1987; Nielson, 1991). Most studies that have documented impacts due to trampling have tended to focus primarily on disturbances that occurred where groups of animals were concentrated rather than dispersed. Additionally, no studies have been reported in southwest Wyoming that document the effects of authorized, dispersed grazing use on historic properties.

Though the potential impacts of livestock grazing are acknowledged, we must also consider those impacts in comparison to other forms of natural disturbance that would have similar effects on surficial cultural sites, features, and assemblages. Ungulates such as elk, deer, and pronghorn antelope have trampled cultural resources on the ground surface for thousands of years. In addition, natural processes such as weathering, erosion, freeze and thaw cycles, and sediment displacement and mixing by plant communities can alter the archaeological record.

Historic properties (cultural resources that are eligible for inclusion in the National Register of Historic Places) that derive their significance all, or in part, from their surface manifestations or the natural context and setting of the property require special consideration. These site types include, but are not limited to, segments of the National Historic Trails system, prehistoric or historic structures or structural remnants, prehistoric rock alignments, rock shelters, areas with known pictographs and/or petroglyphs, or sites or areas of known traditional significance to Native American or other recognized groups. In most cases, a dispersed livestock grazing pattern, in the vicinity of these cultural property types, will have no effect on these resources. However, additional protection of these resources can be accomplished by requiring stipulations such as restricting supplemental feed, salt/mineral blocks, or other measures that would artificially concentrate livestock in one place from these areas.

The Proposed Action has the potential to impact historic properties located within the Sage Chicken Flat allotment in the manner detailed above, to a greater or lesser extent depending on the numbers and types of livestock involved. However, the following stipulations are attached in order to prevent inadvertent adverse impacts to historic properties. These terms and conditions apply to the No Action and Proposed Action alternative analyzed in this document:

- Authorization is for standard livestock grazing only. Any related projects (e.g. fence lines, water pipelines and troughs, spring developments, reservoirs, etc.) and locations for feed supplements (e.g. “crystalix” & other mineral feed supplements, etc.) within the allotment boundaries require separate authorizations.
- If future grazing activity within the allotment boundaries should expose previously undetected cultural resources or if BLM determines that significant historic properties are being damaged by grazing activities within the allotment boundaries, the terms and conditions of this permit will be amended to protect any such historic properties until such time as protective barriers and/or mitigation of these adverse impacts can be conducted

#### **4.2.2 Non-native or Invasive Plant Species**

The presence and abundance of invasive plants is expected to be a minor impact. Like birds and other wildlife, livestock can potentially transport invasive plant seeds on their coat and feet or in their digestive tract. Livestock may carry the seeds of invasive plants that are already present on an allotment, or they may carry seeds of invasive plants they were exposed to on private pastures. They have the potential, therefore, to disperse and introduce non-native or invasive plant species to an allotment. However, Stohlgren *et al* (1999) found that exotic species richness and frequency were basically the same on both grazed and ungrazed sites, suggesting that livestock grazing may not have a primary causal factor on the introduction and spread of



exotic plant species at a landscape scale.

The BLM coordinates with county weed and pest agencies to treat invasive plant species and limit their spread and abundance, as well as to educate ranchers and the general public on precautions they can take to limit the spread of invasive plants. This effort has proven successful in limiting the abundance of invasive plants within the Sage Chicken Flat Allotment.

Because invasive plant species may be introduced and distributed in a variety of ways (including wind dispersion, water dispersion, animals (domestic and wild), vehicles, hikers and other recreationists), and because of the efforts the BLM and county agencies are taking to control invasive plant populations within the area, the presence, or absence, of livestock within the Sage Chicken Flat Allotment is not expected to have a substantial impact on the presence or abundance of invasive plant species.

## **4.2.3 Biological Resources**

### **4.2.3.1 Wildlife**

#### ***Idaho pocket gophers***

Idaho pocket gophers are typically located within the sagebrush foothills zone of the Wyoming Range, Uinta, and Wind River Mountains (Beauvais and Dark-Smiley 2005, Griscom et al. 2010). It is also known to have a higher tolerance for rocky soils (Griscom et al. 2010). These habitat characteristics are located within the project area. Impacts from grazing could include tunnel/burrow collapsing from hoof action of grazing livestock or removal of vegetation and seeds that the pocket gopher feeds upon and stores for the winter months. However, distributing livestock across the lands helps to improve livestock and rangeland conditions and minimize impacts. Therefore, impacts to the habitat are not expected to increase above current conditions and the potential habitat would persist at the current rate.

#### ***Sage-grouse and Migratory Birds***

According to recent studies, the top three threats to sage-grouse are oil and gas, infrastructure, followed by invasive species. A total of 19 different aspects are analyzed, and of these, predation ranks in the middle while grazing is in the top five. Many of these rankings are uncontrollable, including weather and wildfire. From these ranking in the Southwest Wyoming Local Sage-grouse Working Group (SWLWG) has developed three major conservation goals, numerous issue-oriented sub-goals and RMPs and specific actions designed to meet the purpose and mission of the SWLWG (SWLWG 2007). The one issue that these all have in common is that of habitat conversion. This is the overall largest issue that is the direct result of many of the threats that are being analyzed. This is also why the main goal of the SWLWG is to maintain, enhance, and/or restore quality habitat for sage-grouse.

Monitoring results suggest sage-grouse populations in Wyoming were at their lowest levels ever

recorded in the mid-1990s (WGFD 2007). Grouse numbers then increased during the late 1990's with some individual leks seeing three-fold increases in the number of males counted between 1997 and 1999 (WGFD 2007). This increase was synchronous with increased spring precipitation over the period (WGFD 2007). The return of drought conditions in the early 2000's appeared to have led to decreases in chick production and survival and therefore population declines, although the population did not decline to mid-1990s levels (WGFD 2007). Improved habitat conditions due to timely precipitation in 2004 are believed to have led to high chick production and survival (WGFD 2007). This resulted in 2006's counts and surveys having the highest recorded average males per lek since 1978. A return to dry spring and summer conditions in 2006 and 2007 reduced recruitment and the average male s per lek declined in 2007 and 2008 (WGFD 2007).

Average number of grouse within the area is hard to predict due to normal fluctuations in the population. It is difficult to determine a trend due to the little amount of information available and the fact that leks are not observed each year. Thus, in any given year that a lek was not surveyed, a zero is entered as the default. Adding a zero skews the numbers and lowers the average; therefore those years are removed from the averages. Conversely, a lek that was discovered in 2004 could skew the results to artificially increase the averages. Therefore, none of these averages can be accurately compared. In addition, lek data must be interpreted with caution for several reasons: 1) the survey effort and the number of leks surveys/counted has varied over time, 2) not all leks have been located, 3) sage-grouse populations often cycle over approximately a 10 year period, 4) the effects of un-located or unmonitored leks that have become inactive cannot be quantified or qualified, and 5) lek locations may change over time (WGFD 2007).

Impacts to sage-grouse from livestock grazing could include a reduction in grass species. Removal of grasses could negatively impact grouse populations through reduced grass heights and potential litter on the ground. This could reduce the amount of nesting cover needed to hatch a brood. In addition, the reduction in grass height and litter could cause insect populations to decline, thus impacting the food source that sage-grouse nestlings rely upon. The reduced heights and potential for a reduction in insects and forbs could also occur in the riparian areas. From mid- to late-summer, wet meadows, springs and streams are the primary sites that produce the forbs and insects necessary for juvenile birds (SWLWG 2007). Although grazing can cause varying stubble heights, these stay within the average required in the permit guidelines. These guidelines ensure there is enough grass left over for habitat to be suitable for wildlife. An impact that could occur within the allotment is the potential for nest trampling by livestock. By grazing during the latter part of the nesting season (after May 25), there is a potential that sage-grouse nests could be trampled by livestock movements. No major impacts are expected from continuing to graze as long as similar grazing methods are used that have been implemented in the past.

Impacts to migratory birds (i.e., vesper sparrow, song sparrow, etc.) and sagebrush obligate bird



species (i.e. sage thrasher, sage sparrow, Brewer's sparrow, and loggerhead shrike) would be similar to those discussed for sage-grouse.

#### **4.2.3.2 Water Quality**

Livestock tend to spend a disproportionate amount of time near riparian areas and other water sources, especially later in the grazing season when temperatures are warmer, and upland forage decreases in quantity and quality (McInnis & McIver 2001, Marlow & Pogacnik 1986, Belsky *et al* 1999). Spending more time near water sources means the cattle tend to urinate and defecate near those water sources more frequently. Cattle excrement contains nutrients and pathogens that could impact water quality. However, scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader *et al* 1998).

Although the allotment is relatively small (approximately 1,468 acres) mineral supplements will be placed a sufficient distance from water to prevent livestock from loitering near water sources.

#### **4.2.3.3 Wetlands/Riparian Zones**

Livestock (cattle) water in a small creek segment less than a ¼ mile in length along Yellow Hollow creek and two existing stock pond reservoirs. The primary impacts along the creek occur when cattle water, which impacts the soils at the riparian area watering points. Impacts are more severe later in the grazing season when temperatures are warmer and upland forage decreases in quantity and quality (McInnis & McIver 2001, Marlow & Pogacnik 1986, Belsky *et al* 1999). Direct impacts to riparian systems from livestock grazing include: removal of riparian vegetation and soil disturbance from livestock hoof action which may lead to erosion. Some indirect effects livestock grazing may have on riparian systems include: impacts to channel morphology, change in shape and quality of the water column and alteration of streamside soil structure (Fleischner 1994).

The Proposed Action alternative is to continue grazing on the Sage Chicken Flat Allotment as it has been grazed in the past which allows livestock to grazing the entire allotment during the grazing period. The only existing water is Yellow Hollow Creek which is a ¼ mile in length and two existing stock reservoirs. Currently these are the only water locations available for watering on the allotment. Livestock tend to stay scattered in the uplands and the allotment which has allowed the riparian areas to maintain stability and allow riparian vegetation to maintain vigor. This will also allow time for riparian areas to recover from the high grazing use near the water sources to minimize soil compaction and bank shearing.

The Proposed Action will benefit soils on the Sage Chicken Flat Allotment. Spring grazing begins on the Sage Chicken Flat Allotment on May 25 and runs to July 31. This allows for livestock to be off the allotment during the latter part of the hot summer months when livestock like to congregate along the riparian areas and gives riparian plant species such as Nebraska

sedge and beaked sedge the opportunity to recover and set seed.

However, livestock may still tend to spend more time near riparian areas under this alternative than they would under the No Grazing alternative. In June and July, warmer temperatures and less palatable upland forage and dried residual matter may encourage livestock to make more use of succulent vegetation along the riparian areas. This may lead to greater utilization rates on riparian vegetation. The goals and objectives outlined in the Kemmerer RMP (BLM 2010) for riparian /wetland stubble heights is four to six inches (the five inch stubble height is the trigger point to start moving livestock into the next pasture) and fifty percent utilization levels have been established for upland vegetation species.

#### **4.2.3.4 Soils**

Livestock grazing can impact the soil profile by reducing above ground biomass, thereby exposing more of the soil surface to splash and wind erosion, and by compressing the soil surface (Holechek *et al* 2004, pp. 379). This has been shown to lead to lower infiltration rates (Taylor *et al* 1993) which leads to more surface runoff (Liacos 1962). Surface runoff can lead to increased sediment production (Pluhar *et al* 1987), indicating an increase in the amount of erosion occurring in the area. Soil compaction and erosion is likely to be most noticeable near fences, livestock trails and other areas of concentrated livestock use. As stated in the rangelands standards review the soil types within the Sage Chicken Flat allotment consist of Aridic Haplostolls; fine-loamy mixed frigid, Ustic Haplocambids; fine-loamy; mixed; frigid, Humic Dystrocrypts; loamy-skeletal; mixed, Lithic Cryorthents; loamy-skeletal; mixed and Typic Cryaquepts; fine-loamy over sandy or sandy-skeletal; mixed. In addition to the protective cover provided by vegetation, the soil surface in this area contains quite a bit of surface cobble, which provides further protection and stability for the soils on the allotment. Some minor erosion is present but minimal, and is limited to those areas where vehicle and equipment use is concentrated. The vegetative community is quite vigorous and adequate for protecting smaller particle soils from erosion.

Positive impacts on soils from livestock grazing include: improved nutrient recycling, improved availability of some nutrients, changes in carbohydrate fixation, integrating mulch into the soil, and increasing the rate of humus development (Holechek 1981). Livestock grazing may also improve carbon sequestration in some plant communities (Reeder & Schuman 2002).

#### **4.2.3.5 Vegetation**

Early season grazing can harm upland vegetation by defoliating the plant when it is trying to produce a seed crop. Plants are most vulnerable to defoliation early in the season. Most key upland vegetation (such as Indian ricegrass) reproduces solely by seed. Therefore, it is important for these plants to produce a seed crop regularly.

Most key riparian species in the allotment such as Nebraska sedge (*Carex nebrascensis*) and tufted hairgrass (*Deschampsia caespitosa*) will have vegetative reproduction (via rhizomes or similar features) as well as by seed production. Given appropriate utilization levels and adequate rest periods, these species can recover from livestock grazing and still have vegetative reproduction. Livestock may impact vegetation by removing it, or trampling it. Some of the impacted plants may recover and still be able to set seed.

Grazing impacts will influence different plant species in different ways, depending on their resistance and tolerance to herbivores. Over time, plants that are resistant to grazing tend to become more dominant, while plants that are sensitive to grazing tend to become less abundant.

The interactions between grazers and grazed plants are complex and difficult to study and understand (Holechek 2004, pp. 140). Table 4-1 compares some of the ways livestock grazing may benefit vegetation, with some of the ways livestock grazing may be deleterious to vegetation.

**Table 4-1. Ways in Which Livestock Grazing May Be Beneficial or Deleterious to Vegetation Resources**

Potentially Beneficial	Potentially Deleterious
Grazers reduce the amount of excess vegetation that can have a negative effect on net carbohydrate fixation (Holechek <i>et al</i> 2006).	Livestock grazing may alter species composition within vegetation communities (Fleischner 1994).
Grazers may help maintain an optimal leaf area index (Holechek <i>et al</i> 2006).	Livestock grazing may alter ecological succession (Fleischner 1994).
Livestock grazing may reduce water loss to transpiration (Holechek <i>et al</i> 2006).	Livestock grazing may change vegetation stratification (Fleischner 1994).
Grazing removes excess accumulations of dead material that may inhibit net growth (Holechek <i>et al</i> 2006, Holechek 1981).	Livestock grazing may decrease water availability for plants, by increasing soil compaction (Fleischner 1994).
Grazing may promote tillering in some grass species (Holechek <i>et al</i> 2006).	Forage removal may allow soil temperatures to rise, which could increase evaporation (Fleischner 1994).
Grazers may stimulate plant growth by inoculating plant parts with their saliva (Holechek <i>et al</i> 2006).	Livestock grazing alters the nutrient cycle (Fleischner 1994) which may affect nutrient availability for plants.
Livestock can help trample seeds into the ground, which may improve germination rates (Holechek 1981).	Herbivores modify the growth form of plants by consuming terminal buds thereby promoting lateral branching (Fleischner 1994).
Livestock grazing may reduce the frequency of wildfires (Holechek 1981). Note: may be beneficial or detrimental.	Livestock grazing may reduce the frequency of wildfires (Holechek 1981). Note: may be beneficial or detrimental.

Some plants increase the flow of growth hormones following herbivory (McNaughton 1979).	
Some plant species may be more productive and more fit as a result of being grazed (McNaughton 1979, Paige and Whitham 1987).	

When considering the impacts listed in Table 4-1, it is important to remember that the specific impacts, and the degree to which the plants are affected, are directly influenced by the intensity and season of grazing. For example, species composition may not be altered under a conservative stocking rate (~35% forage utilization), but may be altered under a heavy stocking rate (forage utilization >50%).

Overall, response to herbivores is influenced by a number of factors, including (Holechek *et al* 2004, pp. 141; McNaughton 1979):

- Genetic potential of the plant
- Which plant tissues are removed
- Developmental stage of the plant at the time of defoliation
- Growth promoting features
- Intensity and frequency of herbivory
- Environmental constraints (i.e. light, nutrients, temperature, water availability, etc.)

The Proposed Action alternative will have a minimal impact on upland vegetation by allowing the key species Idaho fescue (*Festuca idahoensis*), mountain brome grass (*Bromus carinatus*), Basin wildrye (*Leymus cinereus*), Columbia needlegrass (*Achnatherum nelsonii*), and slender wheatgrass (*Elymus trachycaulus*) as the 50 percent utilization level established in the RMP and 50 percent within the uplands. There is adequate upland forage to produce seed prior to grazing the following year. Based on the grazing management stubble height objective of the 4-6 inch range allows what riparian vegetation is on the allotment to maintain its vigor and health within the riparian areas.

#### 4.2.4 Social and Economic Resources

Current grazing fees on public land are \$1.35 per Animal Unit Month (AUM), compared to \$5.13/AUM on Wyoming State Land, and ~\$15.70/AUM on private, non-irrigated grazing land (USDA 2009b). Grazing fees on the Sage Chicken Flat Allotment currently generates ~\$75.60 annually. Money generated from public land grazing fees on the allotment is distributed as follows:

- 50% - Range Improvement Fund. This money is used to implement range improvements (i.e. water developments, fence construction, spring developments, etc...) in the area where the grazing fees were generated.

- 12.5% - State of Wyoming
- 37.5% - U.S. Treasury

## **4.3 Alternative 3 - No Grazing**

### **4.3.1 Cultural Resources**

Implementation of the No Grazing Alternative would not impact the cultural resources on the public land within the allotment. However, if the private landowners decide to fence their private land, cultural resources that exist on private land could be threatened by the construction process and by the potential concentration of livestock on those lands, rather than being dispersed across a greater area. In addition, if the private landowners bar the BLM from crossing their private land, it would make it difficult or impossible to conduct further inventories or ensure protection of known cultural resources.

### **4.3.2 Non-native or Invasive Plant Species**

This alternative would eliminate one of the potential mediums for transportation of invasive plant seeds on this allotment. However, Stohlgren *et al* (1999) found that exotic species richness and frequency were basically the same on both grazed and ungrazed sites, suggesting that livestock grazing may not have a significant impact on the abundance of exotic plant species at a landscape scale.

Because invasive plant species may be introduced and distributed in a variety of ways (including wind dispersion, water dispersion, animals (domestic and wild), vehicles, hikers and other recreationists), and because of the efforts the BLM and county agencies are taking to control invasive plant populations within the area, the presence, or absence, of livestock within this allotment is not expected to have a substantial impact on the presence or abundance of invasive plant species.

### **4.3.3 Biological Resources**

#### **4.3.3.1 Wildlife**

If the no grazing alternative were chosen, then there would not be any impacts from livestock grazing on BLM managed public lands. However, due to the PFC and greenline data, it is unlikely that there would be any noticeable differences between current grazing management and natural processes.

The No Grazing Alternative would provide the most protection to T&E and special status species within the Sage Chicken Flat Allotment as compared to the Proposed Action Alternative. The absence of livestock would eliminate or reduce deleterious impacts to sage-grouse from habitat

alteration, reductions in cover and forage quality, and inadvertent nest destruction due to trampling.

#### **4.3.3.2 Water Quality**

By removing livestock from this allotment, this alternative would reduce the amount of animal waste deposited in or near water sources. Waste contains nutrients and pathogens that could potentially impact water quality. Some nutrients found in animal waste stimulate algae growth and may lead to algal blooms (Belsky *et al* 1999). However, scientific evidence linking livestock grazing on rangelands to impaired water quality is lacking (Nader *et al* 1998).

The BLM expects that the No Grazing Alternative would provide more water quality protection than the No Action/Proposed Action alternatives. Water quality would be expected to remain the same, or improve under this alternative.

#### **4.3.3.3 Wetlands/Riparian Zones**

Total rest is likely the best method for showing rapid improvements in riparian and wetland areas that are in need of improvement. Total absence of domestic herbivores eliminates many of the impacts that are detrimental to riparian systems.

#### **4.3.3.4 Soils**

The No Grazing Alternative would provide the most protection to soils within the Sage Chicken Flat Allotment. The lack of large domestic herbivores would limit impacts to soils to those caused by wildlife and other natural events. Soil compaction would be minimized, as would loss of soils to wind and water erosion.

#### **4.3.3.5 Vegetation**

The No Grazing Alternative would eliminate the impacts listed in Table 4-1 (both potentially beneficial impacts, and potentially deleterious impacts). Vegetation would be entirely devoted to wildlife and ecosystem functions (such as nutrient cycling, sediment filtration, etc.). However, West *et al* (1984) found that total exclusion of livestock does not always lead to an improvement in forage production. Other studies have also shown that removal of livestock grazing can lead to lower forage production, an increase in shrub cover, and a decrease in species richness and plant diversity (Manier & Hobbs 2007, Patton *et al* 2007).

#### **4.3.4 Social and Economic Resources**

Current grazing fees on public land are \$1.35 per Animal Unit Month (AUM), compared to \$5.13/AUM on Wyoming State Land, and ~\$15.70/AUM on private, non-irrigated grazing land

(USDA 2009b). Grazing fees on the Sage Chicken Flat Allotment currently generates ~\$75.60 annually. Money generated from public land grazing fees on the allotment is distributed as follows:

- 50% - Range Improvement Fund. This money is used to implement range improvements (i.e. water developments, fence construction, spring developments, etc...) in the area where the grazing fees were generated.
- 12.5% - State of Wyoming
- 37.5% - U.S. Treasury

The BLM expects that under the No Grazing alternative no grazing fees on public land would be collected and no funds would be generated from grazing fees and no distribution of funds would be distributed as shown above.

## **4.4 Cumulative Impacts to Resources**

The Council on Environmental Quality (CEQ) regulations defines a cumulative impact as “an impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions.” Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR1508.7). Cumulative effects need to be analyzed in terms of the specific resource, ecosystem and human community being affected for the identified resources with possible reasonably foreseeable future actions (RFFA).

The CEQ, in a guidance memorandum issued on June 24, 2005, states that “environmental analysis required under NEPA is forward-looking,” and that review of past actions is required when identifiable present effects of past actions are relevant and useful when analyzing the RFFA. It must be determined if those past effects will continue to have an ongoing significant relationship to those effects. Generally, a strong description of the current state of the environment as identified in within this document will include the effects of past actions.

Agencies are not bound to analyze individual past actions unless that information is necessary to describe the cumulative effect of all past actions combined. CEQ states “Generally, agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” Proposed actions of limited scope and finalized with a finding of no significant impact, “usually involve only a limited cumulative impact statement to confirm that the effects of the proposed action do not reach a point of significant environmental impacts.”

Each of the affected resources below must be analyzed to determine the resources’ ability to accommodate additional effects which may be applied to the resource for future development needs. Focus will be provided within the analysis to ensure long-term productivity or sustainability of each resource listed.



Since the effects of the Proposed Action are expected to last ten years, this time frame is considered to be most appropriate for considering the incremental effect of RFFA. For the purpose of this analysis the cumulative impact assessment area is the Sage Chicken Flat Allotment. The provided list of resources identified below has been determined to be reasonable resources that have identified effects which may be evaluated meaningfully.

#### **4.4.1 Cultural Resources**

Domestic grazing has occurred for over 100 years in southwestern Wyoming. Undoubtedly, cultural resources have been affected by trampling over time in areas where groups of animals were concentrated however no significant impacts to historic properties have been documented by or reported to BLM archaeologists within the APE as a result of dispersed livestock grazing. The most detrimental impacts to historic properties documented within the KFO related to range improvement have resulted from unauthorized construction projects. In some cases, cultural resources have been irrevocably damaged and valuable scientific data has been lost. However, these types of situations are rare.

Projects associated with industrial development and recreational activities have also occurred within the area over the years. Projects that occurred prior to the passage of the National Historic Preservation Act (NHPA) were likely conducted without much regard to cultural resources. It is not known how great of an impact these early developments had on the archaeological record. Since the passage of National Historic Preservation Act, all ground disturbing activities, including those related to range management, recreation, and other activities common in the allotment, have had to comply with Section 106 of the NHPA and all adverse impacts have thus been avoided or mitigated prior to construction. Therefore, the loss of important scientific data, which is considered one of the most substantial potential impacts to cultural sites, has been circumvented in most cases.

#### **4.4.2 Non-Native and Invasive Plant Species/Upland Vegetation**

The presence and abundance of invasive plants is not expected to be considerably different under the Proposed Action alternative, than under the No Action and No Grazing alternatives.

Like birds and other wildlife, livestock can potentially transport invasive plant seeds on their coat and feet or in their digestive tract. Livestock may carry the seeds of invasive plants that are already present on the allotment, or they may carry seeds of invasive plants they were exposed to on private pastures. They have the potential, therefore, to disperse and introduce non-native or invasive plants species to an allotment. However, Stohlgren et al (1999) found that exotic species richness and frequency were basically the same on both grazed and ungrazed sites, which suggests that livestock may not have a significant impact on the abundance of exotic plant species at a landscape scale.



Minor landscape-level negative cumulative impacts to vegetation could occur from the combined influences of grazing and other past, present, and future land uses in this allotment, such as use by wildlife, construction of water developments, and vegetation treatments. However, implementation of the Proposed Action, in combination with these land uses, is expected to maintain the physical structure and ecological function of plant communities. For example, the allotment consists of a mixture of sagebrush with perennial grasses and forbs. These plant communities provide habitat for a variety of small mammals such as ground squirrels and various other rodents, rabbits, and burrowing species. Proper management of the multiple uses of BLM owned lands, including grazing, could improve the biodiversity of both plant and animal communities at the landscape level. Effects from vegetation treatments, such as prescribed burns, could increase grass and forb species and vegetation production from conversion of high-density sagebrush to sagebrush/grass communities.

Considering the current push for America to become more energy independent, it is likely that oil and gas development will continue around this allotment, and perhaps may be introduced in the allotment. This may produce invasive species adjacent to or in the allotment which could spread onto or increase in the allotment.

Current grazing would continue to occur at the same rate and the expectation would be that plants would continue to spread at the same rate, so there would be no cumulative effect.

#### **4.4.3 Livestock Grazing**

Under the No Action and Proposed Action alternatives, livestock would continue to graze as the allotment as they have in the past. The primary agricultural use of the assessment area has been livestock grazing. The primary type of livestock that graze the allotment is cattle. If the listing of the Greater Sage-grouse occurs as a threatened species this could foreseeably affect grazing management.

The primary agricultural use of the Sage Chicken Flat area has been livestock grazing. Improvements include the allotment boundary fence and two existing reservoir developments. The entire allotment is grazed during the grazing season with no detrimental effects to the soils, vegetation, etc. and based on this and other observations, it is not anticipated that effects from grazing should be the same as under the proposed action.

The No Grazing alternative may provide an incentive for the private land owner to sell their private lands.

Studies have shown that as many as 45% of ranches are being sold every decade in the United States (Gosnell & Travis 2005 as cited in Brunson & Huntsinger 2008). When sold, private ranchland is often subdivided and used for housing developments, or their associated amenities. When this happens, the private ranchland loses most of its ecological values. Such developments

not only eliminate habitat for plants and wildlife, but they also act to fragment the landscape, making it more difficult for wildlife to move from one block of suitable habitat to another.

The loss of habitat from development may combine with other impacts, such as landscape scale grazing, oil and gas development, recreational activities and other disturbances to have a cumulative impact on the human environment. The combination of these disturbances may further displace wildlife, impact water quality, degrade riparian habitat, and impact nutrient cycling and other important ecosystem functions. Some of these impacts may be offset, to some degree, by the removal of livestock grazing from the BLM land within the Sage Chicken Flat Allotment. However, as this allotment contains approximately 796 acres of BLM land, the potential offset is not expected to be substantial.

Overall, the cumulative effects of the No Grazing alternative are expected to be more substantial than the cumulative effects of the Proposed Action alternative.

#### **4.4.4 Biological Resources**

The majority of cumulative effects on wildlife habitat would result from surface disturbing and disruptive activities, such as mineral development and associated wells, roads, pipelines, and facilities; rangeland improvements; and other such activities (e.g., geophysical exploration). Effects would be in the form of habitat fragmentation and animal displacement. Vegetation treatments in the form of prescribed burns could also affect wildlife resources, particularly the Greater Sage-grouse. If private land currently used for grazing were sold for residential or commercial development, the loss of connectivity between habitats and the loss of vegetation could result in a reduction in the availability and quality of forage and could result in increasing competition among grazing animals. Habitats could be made unavailable to wildlife because of human disturbance factors such as traffic, noise, or increases in livestock during sensitive time periods such as winter, parturition, nesting, and early rearing of young. Impacts on wildlife could be significant if activities were concentrated in areas of sensitive wildlife habitat and/or if increased development and surface disturbance altered existing migration in the Dempsey Basin to the extent that access to important habitat areas was greatly reduced. Habitat fragmentation occurs when a contiguous habitat is broken up (fragmented) by disturbing activities, causing a reduction in usable ranges and the isolation of smaller, less mobile species; a loss of genetic integrity within species or populations; and an increase in the abundance of habitat generalists that are characteristic of disturbed environments (i.e., competitors, predators, and parasites). The primary fragmentation factor affecting wildlife species (especially big game) is the reduction in usable habitat and the disruption of migration route within the Dempsey Basin Allotment. Transportation routes tend to fragment habitats and can act as barriers to some species, especially in severe winter conditions. Fragmentation factors affecting wildlife in this allotment analyzed in this EA may include county roads, rural roads, mineral development infrastructure, and rivers.

Livestock grazing is occurring throughout the area that surrounds this allotment. The

combination of landscape scale grazing and other human activities that disturb soils and vegetation (such as roads, irrigation, recreational activities, etc.) may have a cumulative impact on the human environment. The combination of these disturbances may further displace wildlife, impact water quality, degrade riparian habitat, and impact nutrient cycling and other important ecosystem functions.

Minor landscape-level negative cumulative impacts to vegetation and wildlife could occur from the combined influences of grazing and other past, present, and future land uses in this allotment.

However, implementation of the Proposed Action, in combination with other past, present, and future land uses, is expected to maintain the physical structure and ecological function of plant communities. For example, the allotment consists of a mixture of sagebrush with perennial grasses and forbs. These plant communities provide habitat for a variety of small mammals such as ground squirrels and various other rodents, rabbits, and burrowing species. In addition, a variety of small bird species, both migratory and year-round residents, may also occur in the area.

These species are, in turn, preyed upon by larger carnivores such as fox, coyote, mountain lion, bear, badger, skunk, and by raptor species such as golden eagles and various hawks. Proper management of the multiple uses of BLM owned lands, including grazing, could improve the biodiversity of both plant and animal communities at the landscape level. Livestock grazing and in particular, water developments, could be beneficial to wildlife by opening areas for forage consumption that are currently not available due to lack of water or distance from water. Effects from vegetation treatments, such as prescribed burns, could benefit most wildlife species through an increase in grass and forb species and vegetation production from conversion of high-density sagebrush to sagebrush/grass communities.

Due to the sage-grouse leks within the project area, the potential for fence collisions would increase. It is unknown how many sage-grouse could be impacted, but, due to the current and future conservation need of this species, an increase in the number of fence collisions by sage-grouse could potentially contribute to the need for listing of the species under the ESA (BLM 2008). The addition of fences could also influence big game movements. Elk that try to jump any new fence could potentially be entangled or get one leg caught. If only one leg were to be caught, the potential to have wire broken or removed from the fence posts and drag across the landscape increases. The same impacts would occur for moose. Pronghorn would typically find a low area and crawl under the bottom wire of the fence. If a movement barrier is encountered, pronghorn will typically walk the length of the barrier until a crossing point is encountered. If a crossing point is not encountered, it is possible that the pronghorn would try to jump the fence (causing entanglement) or be removed from the population from starvation or other environmental conditions that otherwise could be avoided. Mule deer typically jump fences as well. However, during severe winters, most energy is used for survival. It is highly likely that in these instances, a new fence or series of fences could increase energy expenditure to the point that winter survival is infeasible. In addition, any new fence could potentially be a large movement barrier during spring and fall migration from summer/fawning habitat to crucial winter range and vice versa. As any new potential fence construction on public land would be

“wildlife friendly” these impacts are expected to be minimal on public land.

Other impacts could include fence line effects in which livestock trail along the fences. Along these trails would be an increase in soil compaction. An increase in soil compaction could negatively influence fish and amphibian habitats due to increase overland flow events. Once fenced, livestock could potentially overgraze the area. If the area becomes overgrazed then the livestock will be pressuring the fences trying to reach better and more abundant forage. Even if all livestock were to be contained by fencing the private lands (No Grazing Alternative), there could be increased pressure on the public lands from wildlife. Wildlife could potentially avoid the areas that are fenced. By avoiding these areas, there would be more wildlife competing for the same resources in a smaller area. This direct competition could lead to a reduction in population numbers and overall individual health. These impacts, in combination with all other past, present, and reasonably foreseeable actions could have negative impacts on wildlife species within the project area.

Cumulative impacts to big game would be directly impacted through competition by foraging livestock during grazing. This would impact big game in different ways. Pronghorn numbers are just below WGFD population levels, therefore the cumulative impact due to grazing is expected to be minimal.

The largest impact to other species beyond big game includes habitat loss and displacement. Livestock grazing could contribute to nest trampling or abandonment, burrow collapse impacting fossorial wildlife, forage competition between livestock and small mammals, a reduction in insect populations and reduced vigor in plant species. By implementing the proposed terms and conditions, the chances of nest loss through trampling or abandonment would be reduced.

Reducing the impacts to the water sources or riparian areas by spreading livestock across pastures within the allotment would allow the vegetation the ability to retain the vigor needed to withstand high flow precipitation events. In addition, there would be less grazing pressure on the vegetation which would allow insect populations to remain viable. Viable insect populations would help nourish young birds until they are able to forage themselves. These insect populations would also be valuable for amphibians during different life stages of their life cycle and would provide a food source for fish populations. By reducing the impacts through the proposed terms and conditions, overall impacts are not expected to increase beyond current conditions.

#### **4.4.5 Water Quality/Wetlands/Riparian Zones/Soils**

Livestock grazing activities can impact wetlands and riparian areas primarily by removal of vegetation and soil disturbance. Potential impacts include grazing herbaceous and woody vegetation and damage resulting from livestock hoof action.

Unchecked, these impacts could result in insufficient vegetation to protect streambanks thus increasing soil erosion and compaction.

Effects on water resources from past and present actions have been limited due to the lack of any concentrated development. The primary impact has been the generation of sediment and erosion from ground disturbing activities like grazing, off-road vehicle use, and recreation, etc. Impacts from livestock grazing have been the most prevalent due to animals' tendency to loiter in riparian areas resulting in channel instability, trampling, etc. The extent of these impacts is localized due to the dispersed nature of all of the activities.

Those impacts associated with the past and present actions will likely continue to occur. In particular, the reasonably foreseeable increase in off-road vehicles would result in increased instability and sedimentation.

#### **4.4.6 Oil and Gas Development**

One oil and gas development has occurred on the North Horse Creek allotment on public lands; this allotment is directly north of the Sage Chicken Flat allotment resulting in dry holes, but areas of more concentrated development are at least ten miles away. It is not expected that oil and gas will be a potential future action in this area.

### **4.5 Mitigation Measures Considered**

All authorized future ground disturbing activities in the allotment must comply with Section 106 of the National Historic Preservation Act (NHPA) and provisions 303(a) and 303(c)(2)(g) of FLPMA. Proposed ground disturbing activities are subject to appropriate cultural investigations prior to permit issuance, and will be analyzed under a separate and site specific NEPA document. The construction of new facilities, including fences or roads, would require a Class III cultural inventory. All adverse impacts would be mitigated prior to construction. All adverse impacts would be mitigated prior to construction. See section 4.2.1.

Additional measures to aid with rangeland health include:

- If conditions warrant, livestock will be herded away from the riparian areas once the utilization requirements are met, so that uplands are utilized. Supplements may be strategically placed in the uplands as an incentive for livestock to utilize upland vegetation.
- A number of studies have shown that strategic supplement placement can be used to manipulate livestock distribution, thereby reducing use and stress on riparian systems (Bailey & Welling 1999, Bailey et al 2001, McDougald et al 1989, McInnis & McIver 2001). This would likely lead to a reduction in the intensity of use in the riparian zones and an improvement in the condition of riparian systems within this allotment.

- Before livestock turn out, all fences must be functional, as maintained by the permittee. Permittee will inform the BLM when all maintenance activities have been completed.




These measures will be considered for incorporation into the Terms and Conditions of the permit under the proposed action.

## 5.0 Tribes, Individuals, Organizations, or Agencies Consulted



"A cultural resource data review was completed for the allotment and yielded no evidence of known, tribally-sensitive sites that would trigger Native American consultation under the provisions of Section 106 of the National Historic Preservation Act. In addition, no consultation was initiated with individuals, organizations, and agencies regarding the presence of significant sites because the proposed action has no potential to affect historic properties."

## 6.0 List of Preparers and Reviewers

### Preparers

 Carl Bezanson	KFO Rangeland Management Specialist
 Jessup Weichelt	KFO Wildlife Biologist
 Doug Tingwall	KFO Archeologist

### Reviewers

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 Travis Chewning	KFO Planning and Environmental Coordinator

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## Appendix A

### Critical Elements of the Human Environment Considered in this EA

PI – Potential Impact. One or more of the alternative may have an impact on the element; NI – No Expected Impact. No impact on the element is expected from any of the alternatives; NP – Not Present. The element is not present within the allotment(s).				
PI	NI	NP	Element	Information/Rationale
	✓		Air Quality	“While there is limited ambient air quality-monitoring data available for the study area, air quality is generally considered good, with no regions designated as non-attainment for National Ambient Air Quality Standards (NAAQS) or Wyoming Ambient Air Quality Standards (WAAQS).” (BLM 2008, pgs. 3-5).
		✓	Areas of Critical Environmental Concern	There are no ACECs within or near the Sage Chicken Flat Allotment.
✓			Cultural Resources	<p>The BLM KFO Archaeologist conducted a previous data review of the Sage Chicken Flat Allotment in 2006 (agency project number: 09007058). Only three cultural resource inventories and related projects have been conducted within the sections analyzed for the previous and current data reviews between 1980 and 2001. The following is quoted from the review document:</p> <p>“This review found portions of three (3) Class III inventories and one (1) Class II cultural resource sampling surveys conducted between 1979 and 1996. Those inventories consisted of one (1) access road, one (1) land exchange, one (1) cattle guard project, and the sample survey. The total number of approximate acres within the allotment is 15862, 11361 acres are public land, 3861 acres of private land and 640 acres of State land within the Sage Chicken Flat Allotment. No effects on any historic properties are documented as attributable to authorized grazing permit renewal.</p> <p>“Domestic livestock grazing has occurred for over 100 years in southwestern Wyoming. No impacts to significant cultural resources have been reported in the area as a result of authorized, dispersed livestock grazing within the allotment boundaries.”</p>
	✓		Environmental Justice	None of the alternatives would have a disproportionately adverse effect on persons of any race, color, national origin or income level.
		✓	Farmlands (Prime or Unique)	No Prime or Unique Farmlands (as defined by 7 CFR 657.5) are present on the Sage Chicken Flat Allotment.
		✓	Floodplains	No floodplains are present on the Sage Chicken Flat Allotment.
		✓	Native American Religious Concerns	No areas of Native American Religious Concern have been identified within or near the Sage Chicken Flat Allotment.
✓			Non-native or Invasive Plant	When the Standards for Healthy Rangelands assessment was conducted on the Sage Chicken Flat Allotment, the following was

PI – Potential Impact. One or more of the alternative may have an impact on the element; NI – No Expected Impact. No impact on the element is expected from any of the alternatives; NP – Not Present. The element is not present within the allotment(s).				
PI	NI	NP	Element	Information/Rationale
			Species	<p>found:</p> <p>“A few, individual Musk Thistle (<i>Carduus nutans</i>) and Canada Thistle (<i>Cirsium arvense</i> L.) plants are present on the allotment. Black henbane (<i>Hyoscyamus niger</i>) was found in isolated spots along the roadway. None of these species appeared to be actively spreading through the allotment.”</p> <p>Note that Musk Thistle is designated as a noxious weed by the Wyoming Weed and Pest Council.</p>
✓			Threatened, Endangered, Proposed or Candidate Species	<p>A wildlife clearance was completed for the Sage Chicken Flat Allotment on December 5, 2006 based on the BLM GIS database and a field visit. This clearance identified that there are isolated patches of marginal habitat on the Sage Chicken Flat Allotment for the mountain plover (<i>Charadrius montanus</i>), a proposed species for the Endangered Species Act. There is no habitat present for the following Threatened or Endangered (T&amp;E) species or candidate species: black-footed ferret (<i>Mustela nigripes</i>), gray wolf (<i>Canis lupus</i>), Canada lynx (<i>Lynx Canadensis</i>), Colorado River fishes, Bald eagle (<i>Haliaeetus leucocephalus</i>), grizzly bear (<i>Ursus arctos horribilis</i>), blowout penstemon, Ute ladies-tresses and yellow-billed cuckoo. Furthermore, there will not be any downstream effects to endangered Colorado River fishes as the allotment is within the Green River drainage. However, potential impacts may occur to sage-grouse as the entire allotment is located in a sage-grouse nesting and brood-rearing habitat. Lek nesting and brood rearing surface disturbing or disruptive activities are restricted within two miles of an occupied lek. The Sage Chicken Flat Allotment is within two miles of active leks. Winter area surface disturbing or disruptive activities in delineated winter concentration areas are also restricted but these areas are still in the process of being mapped.</p>
		✓	Wastes, Hazardous or Solid	<p>There are no known hazardous or solid wastes present on the Sage Chicken Flat Allotment. Livestock grazing is not expected to produce or contribute any hazardous or solid wastes.</p>
✓			Water Quality, Drinking or Ground	<p>There is one intermittent creek and two reservoir used as water sources on the Sage Chicken Flat Allotment (Yellow Hollow Creek). This water sources is not listed on the Wyoming Department of Environmental Quality’s 303(d) list. This list describes water sources that do not currently meet state water quality standards. The creeks have intermittent water flow and depend on the amount of snowpack the area receives each year. The other water source is Pink Hills Reservoir approximately one acre in size in T24N R117W Section 28.</p>
✓			Wetlands/Riparian Zones	<p>Approximately 1/4 mile of the Yellow Hollow Creek runs through the southeast portion of the Sage Chicken Flat Allotment and is rated as</p>

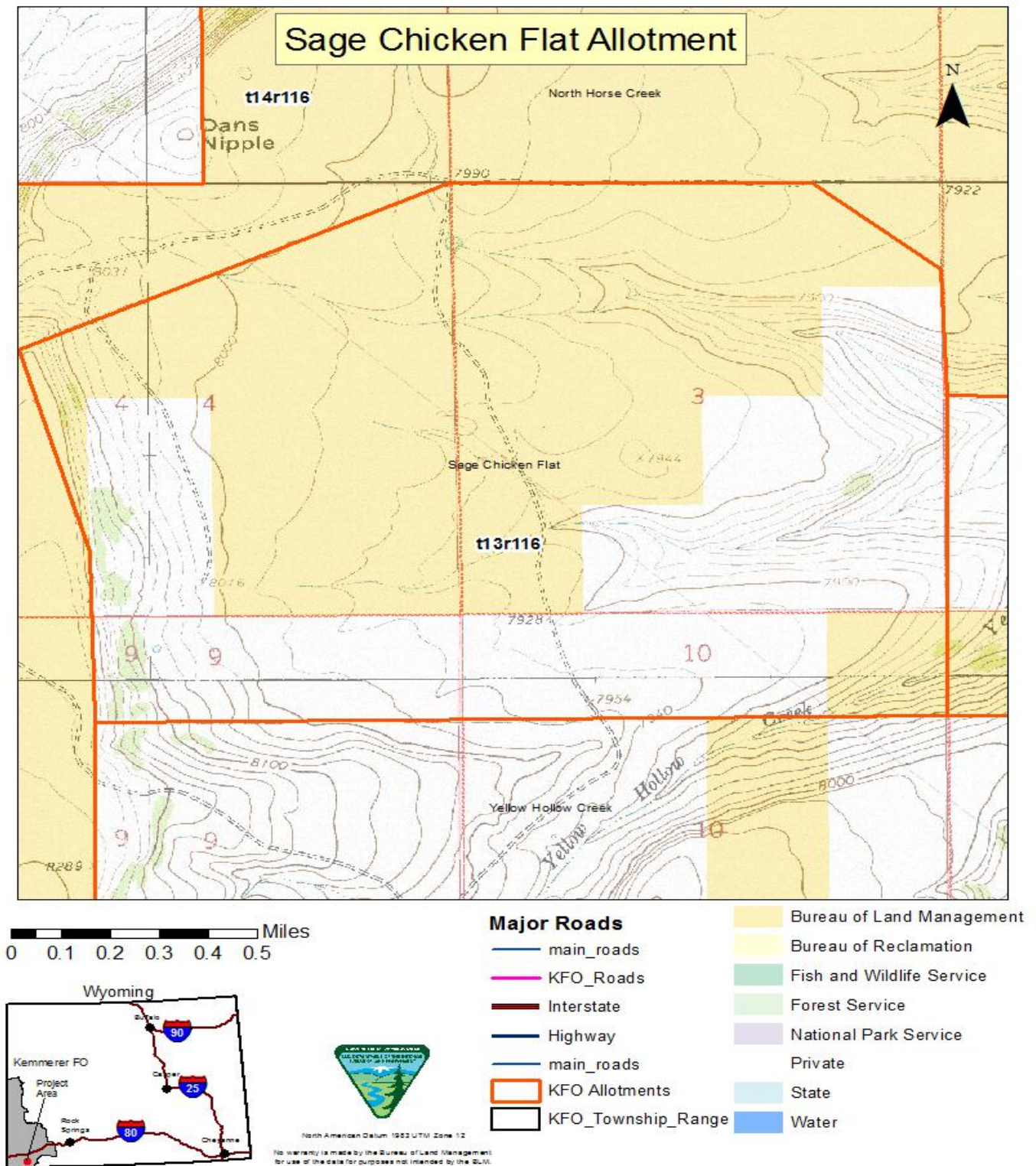
PI – Potential Impact. One or more of the alternative may have an impact on the element; NI – No Expected Impact. No impact on the element is expected from any of the alternatives; NP – Not Present. The element is not present within the allotment(s).				
PI	NI	NP	Element	Information/Rationale
				being in Proper Functioning Condition (PFC). The system is intermittent and does not flow the entire year on the surface.
		✓	Wild and Scenic Rivers	No Wild and Scenic Rivers are present within the Sage Chicken Flat Allotment.
		✓	Wilderness	No designated wilderness areas are present within the Sage Chicken Flat Allotment.



## **Appendix B**

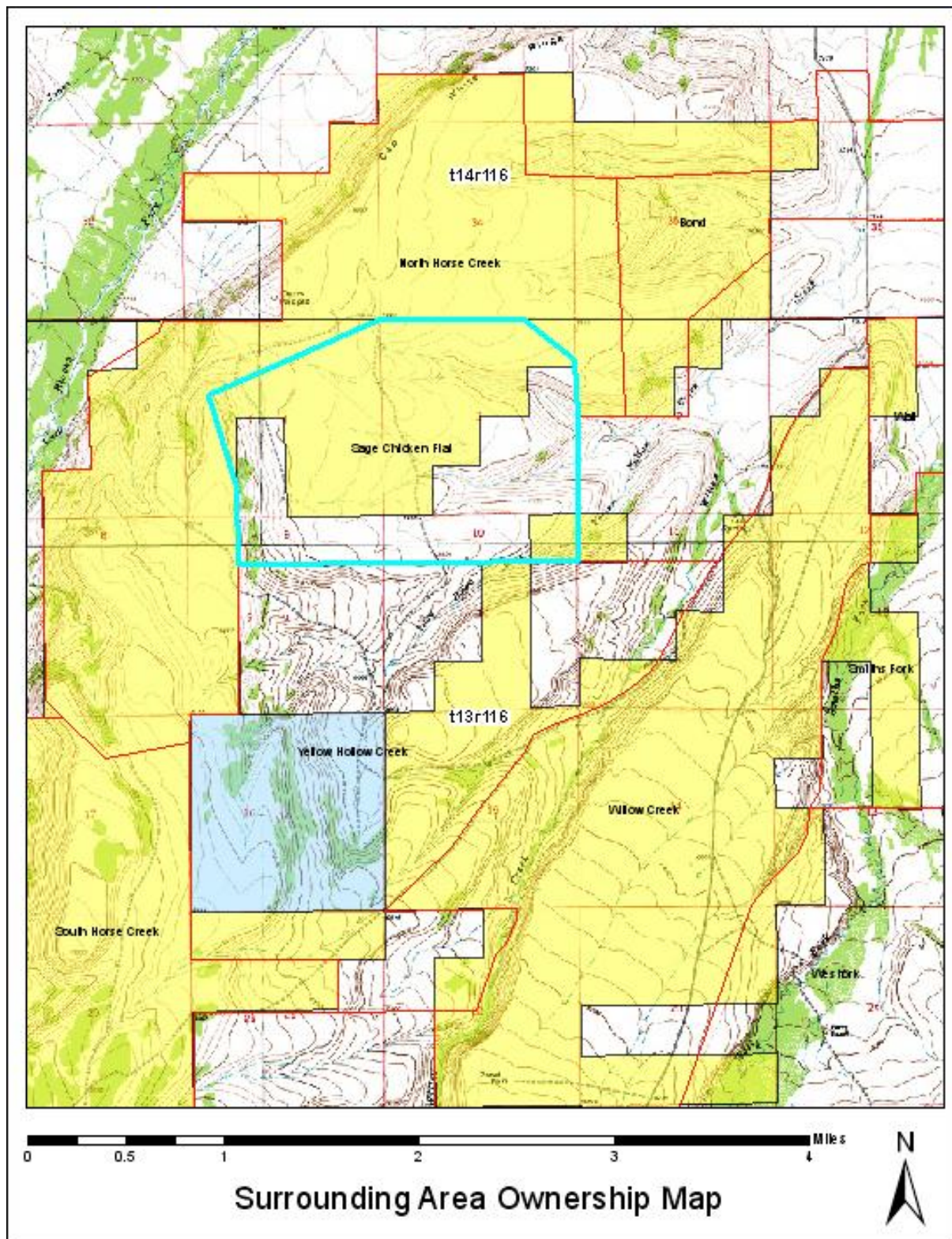
### **Maps**

# Map 1





## Map 2

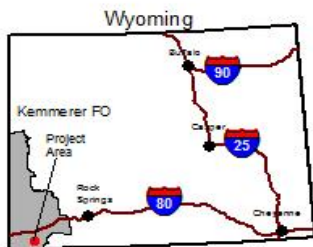
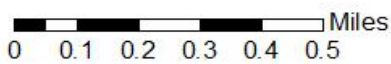
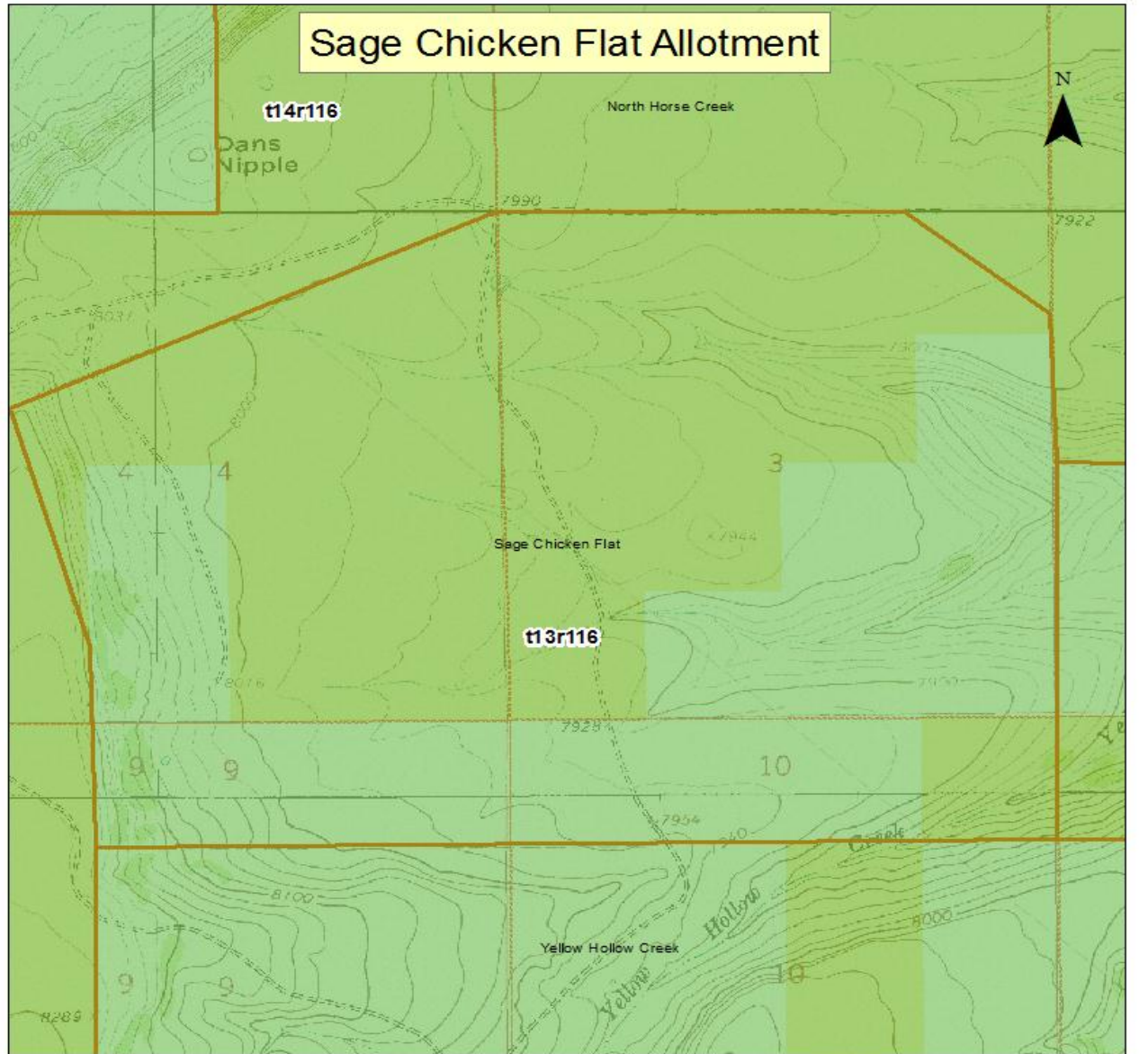




## Map 3



# Map 4



North American Datum 1983 UTM Zone 12  
No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by the BLM.

## Major Roads

- main\_roads
- KFO\_Roads
- Interstate
- Highway
- main\_roads
- KFO Allotments
- KFO\_Township\_Range

- Bureau of Land Management
- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- National Park Service
- Private
- State
- Water
- Sage Grouse Core Area